2015

Balance training application of a systematic framework for clinical decision making in therapeutic gaming for older adults

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Abstract

Falling is a major health concern for older adults. Balance is crucial in order to prevent falls. For balance to be functional an individual must be able to maintain balance while focusing on other tasks. For example, an individual must focus on more than just staying upright during walking while drinking a mug of coffee, or during standing while washing dishes. There are a countless number of daily activities that challenge balance. One of the problems with current clinical balance rehabilitation is that the training is often completed using isolated exercises that do not include the various other cognitive and perceptual components that occur concurrently in real life activities. Training balance using video games addresses this problem because it is more similar to real world activities that require balance. Gaming's virtual reality nature means that there are multiple varied but simultaneous personal, task, environmental elements.

As with any exercise prescription, to realize maximum therapeutic benefit, the training must match the individual's needs and goals. However, people's balance skills vary based on the activities in which they participate. For example, an older adult who participates in gardening will have an easier time moving between standing and kneeling than someone who rarely gets on the floor in daily life activities. The framework provides the detailed analysis necessary in order to tailor video gaming to adequately challenge each individual's specific balance exercise prescription requirements.

**Supported by the McNair Scholars Program*